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Spontaneous breaking of C-invariance in a Friedmann universe with matter

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Abstract

This paper considers the theory of a massless complex scalar field in an isotropic nonstationary Friedmann universe, where account of the self-interaction leads to spontaneous symmetry breaking relative to certain transformations. Consideration of the exact solutions to the self-consistent Einstein equations and the equations of the complex field in an open Friedmann universe in the presence of dust can lead to a nonzero macroscopic vacuum charge density, which is interpreted by the author as a breaking of C-invariance by the vacuum. © 1985 Plenum Publishing Corporation.

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